

Construction Surveying/Monumentation

The contract will specify whether ODOT or the Contractor is to perform the construction survey work. Construction survey work includes the surveying needed to establish locations, lines, and grades necessary for the Contractor to construct the work required on the project.

In all cases, ODOT will perform the surveying, or will perform some verification, needed to calculate quantities of work performed by and to be paid to the Contractor. Refer to the Quantities section (12-D) of this Manual.

Construction Survey by ODOT

If ODOT is to perform the construction survey work, Section 00150.15 specifies the responsibilities of the parties. It provides that the Project Manager will:

- Lay out and set any construction stakes and marks necessary to establish the lines, grades, slopes, cross sections, and curve super-elevations for roadwork.
- Set bench marks and stakes for centerline of bridges and bents. Calculate and establish finish deck grades.
- Provide one set of construction stakes for line and grade for each additional phase of the work.

The Project Manager must assure that adequate horizontal and vertical control is available on the project, and that other grades and location information is available, so that construction survey work can be performed in a timely manner for the Contractor's operations.

The Contractor's project schedule should indicate the timing of much of the construction survey work. The Project Manager and Contractor must maintain good communication to identify and provide timely notice of survey needs in order to avoid delays to construction activities.

The Project Manager must assure that the Contractor understands the staking that is performed and the marks that are placed for the work.

Construction surveying must be performed in accordance with current statutes and ODOT guidelines. Survey information must be recorded according to current ODOT practices. Contact the Geometrics Unit for further information.

Follow the requirements of ORS 209 when performing surveying for which a record is to be filed with the County Surveyor.

When the ODOT survey personnel measure quantities of work, that information is a "Source Document" and must be recorded as specified for "Source Documents" in the Quantities section (12-D) of this Manual.

The ODOT survey crew or staking crew must maintain a diary to record the following information daily:

- Date
- Names of crew members
- Weather
- Type and location of work performed and/or accomplished
- Instructions from the Project Manager
- Requests for surveying or staking
- Signature of person making the diary entry.

Construction Survey by the Contractor

When the Contractor will be responsible for performing the construction survey work on a project, Section 00305 will be included in the contract and will identify the responsibilities of the parties. The responsibilities of the parties generally are:

1. ODOT must:

- Provide horizontal and vertical control points for the project
- Calculate and provide grades required by Section 00305
- Provide information needed to accomplish layout of project work
- Measure or verify any quantities derived or calculated by construction survey work

The Project Manager must assure that all of this work and information is performed or supplied to the Contractor in a manner that allows the survey work to be accomplished in an effective manner.

2. The Contractor must:

- Perform any needed calculations and all work needed to establish line, grade, and location for all elements of work to be done under the contract
- Have a Land Surveyor, who is licensed in Oregon, in responsible charge of the construction survey work. A Professional Engineer, who is licensed in Oregon, may be in responsible charge of the construction survey work, however, as long as only a licensed Land Surveyor is in responsible charge of boundary surveying or monumentation.
- Require its surveyor to maintain a daily diary of survey work performed on the project
- Provide to ODOT the survey information required by the contract.

The Contractor may be required to file survey records with the County Surveyor regarding work done on the project.

Monumentation and Bench Marks

ODOT often must install survey markers or monuments to identify centerline or right of way boundaries for its projects. ODOT also may need to install new benchmarks on a project. Some of this work may be included in the contract to be performed by the Contractor.

Survey markers or monuments must be installed according to current ODOT guidelines as well as ORS 209. Contact the Geometronics Unit for current ODOT guidelines for this work.

The Project Manager often must record information on existing survey markers or monuments that will be destroyed during a project. The Project Manager also may need to reference and relocate markers that are disturbed during project work. The Project Manager is responsible for assuring that the markers or monuments are properly recorded, for relocating monuments, if needed, and for assuring that the proper survey records are filed with the County Surveyor.

ORS 209 also specifies timelines within which required survey markers or monuments must be installed and within which the records of the survey must be filed with the County Surveyor. The Project Manager must assure that the work is accomplished properly and timely, whether the work is accomplished by ODOT or Contractor forces.

ODOT works with Federal agencies to maintain a system of benchmarks along the highway system. New benchmarks are often needed or are needed to replace those destroyed by the project.

Contact the Geometronics Unit at the start of a project to determine if new benchmarks will be needed within the project limits. The Project Manager may need to perform some survey work to provide information on the benchmarks.